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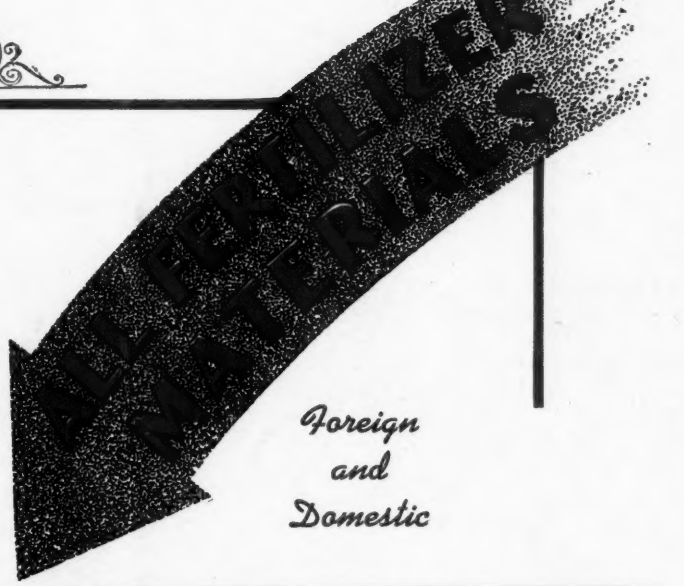

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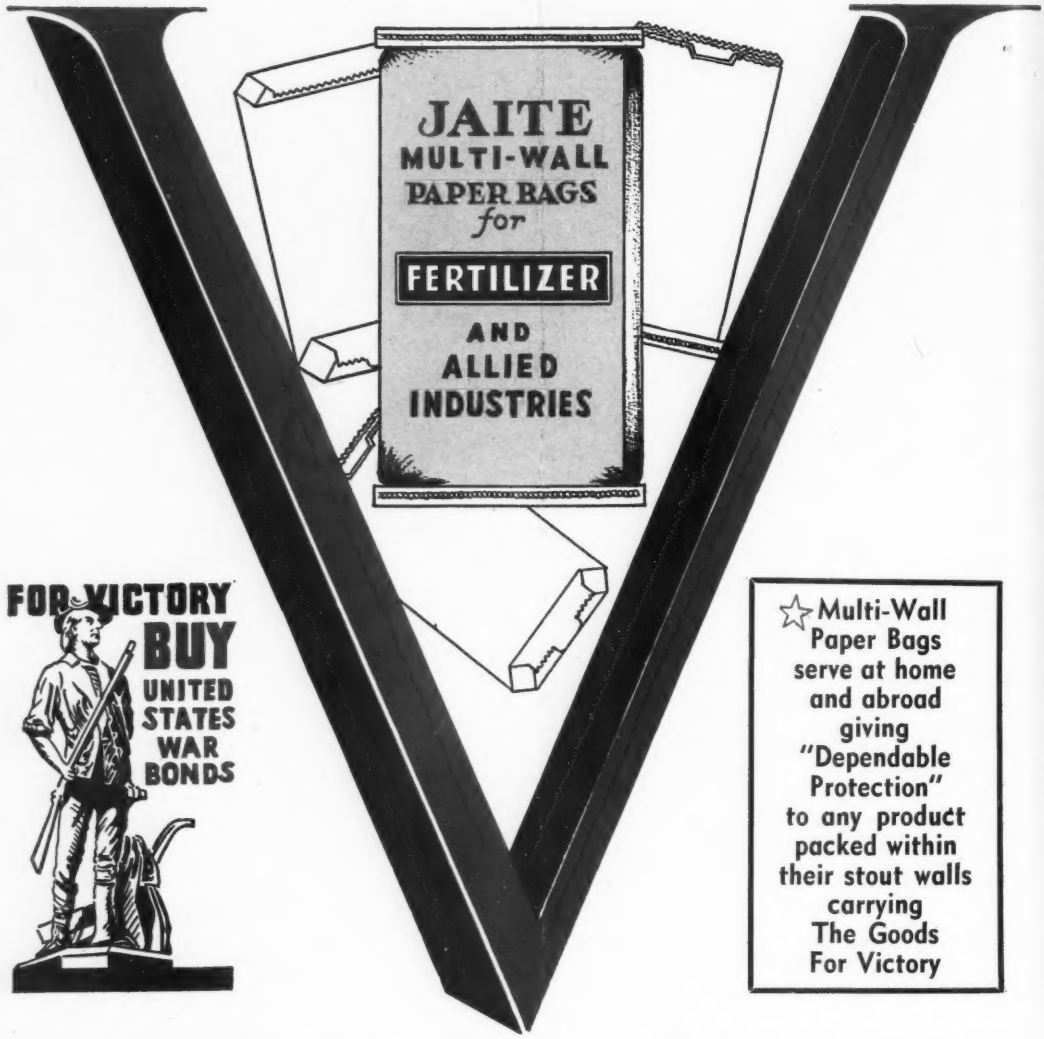

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See page 27

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Vol. 102 APRIL 21, 1945 No. 8

New Fertilizer Bill Would Build Government Fertilizer Industry

AFTER meeting unfavorable criticism from a number of influential sources, Senator Hill of Alabama has withdrawn his fertilizer bill, introduced earlier in the year, and has joined with his Alabama colleague, Senator Bankhead, and with Representative Flannagan, of Virginia, to introduce a new bill patterned after the scheme proposed by the American Farm Bureau Federation. The program outlines for a national fertilizer policy, calling for construction of at least three huge new fertilizer manufacturing plants by the Federal government, making of low-cost loans to farmer cooperatives for acquisition of the army ordnance nitrogen and other chemical plants, and erection of other fertilizer manufacturing plants—all to be coupled up with a vast expansion of the government's present fertilizer demonstration work.

The program was embodied in bills introduced jointly in the senate (S.882) by the two senators and in the house (H.R. 2922) by Mr. Flannagan, chairman of the house committee on agriculture. The bills were the product of, and carry out the recommendations advanced by, the American Farm Bureau Federation at its meetings last December. The sponsors said that they would press for early action on the measures. The Hill bill (S. 74) introduced earlier this year is to be abandoned since its principal features are embodied in the new legislation.

The estimated cost of the program is in the neighborhood of $52,000,000 for the work that the Federal government would undertake alone. This is broken down as follows:—$13,500,000 by the Department of the Interior for erection of two plants for the production of concentrated mineral fertilizers utilizing Western potash and phosphate deposits, and $8,000,000 for surveying and purchase of potash reserves; $6,000,000 for construction by the Tennessee Valley Authority of the Mobile phosphate fertilizer plant, and $5,000,000 for purchase of Florida phosphate lands, and $20,000,000 for demonstrating the value of fertilizers in farming.

The bill starts out with a congressional finding that the soil resources of the nation have been depleted to an alarming degree so as to threaten the nation's welfare and security in terms of maintaining equitable levels of farm income. It then declares it to be the bill's purpose to provide for the most effective coordination, exploration, and use of the resources of the Federal government, in cooperation with State and local agencies and institutions, to restore the nation's soil resources by:

1. Encouraging and facilitating widespread adoption of those farm systems and agricultural practices which become feasible where farmers are provided with adequate amounts and kinds of mineral plant nutrients.

2. Participation of rural communities, practical farmers, and their organizations in the planning and administration of a program of farm and community tests and demonstrations of mineral fertilizers and fertilizer ingredients; and of farmer cooperatives in the production, marketing, and distribution thereof.

3. Immediate construction by the government of additional fertilizer plant capacity

and establishment of the necessary means and measures whereby the deposits of potash and phosphate in all parts of the country may be explored, conserved and utilized to best advantage.

To carry out these purposes the bill provides in title II for establishment of a national test-demonstration program calling for the supplying of concentrated mineral fertilizer to a sufficient number of practical farms, representative of significant variations in natural, physical, economic, type-of-farming, and other conditions, to afford easy access for neighboring farmers to observe and study results. During the initial stages test-demonstrations would be established on average of seventy-five farms in a county.

This program would be administered by the Secretary of Agriculture through the Office of Extension and the Office of Experiment Stations in the Tennessee Valley, where TVA would be the agency responsible. The fertilizer used in the demonstrations would be requisitioned by the Secretary from the fertilizer plants constructed under the authority of the bill and would be supplied without cost. State advisory committees made up of farmers and representatives of cooperatives and the private fertilizer industry, and a national fertilizer policy committee would be established to aid in bringing about the maximum degree of direct farmer participation in demonstration programs.

Title III of the bill covers the construction of new plants. It authorizes TVA to proceed with the construction of the plant at Mobile, for manufacture of phosphatic fertilizers and materials, and also authorizes TVA to construct facilities for the production or processing of by-products from the operations of the Mobile plant. TVA is authorized to purchase or lease sufficient strategically located phosphate lands in Florida to run the plant for fifty years.

The other two fertilizer plants authorized to be constructed with Federal funds would be built by the Department of the Interior and strategically located to draw upon Western potash and phosphate deposits for their raw material supplies. The department also would have the authority to build facilities for production or processing of by-products resulting from operation of the two plants, and it also is authorized to buy or lease sufficient phosphate and potash lands in the Western fields to supply the plants for fifty years.

The bill directs that the plants be operated at the fullest capacity consistent with the lowest possible unit costs and that not less than 50 per cent of the productive capacity shall be used ih the demonstration program. Products used in the demonstration program would be disposed of through farmer cooperative associations and commercial channels, preference being given to farmer cooperatives.

The fertilizer plants and all rights and title to the mineral fertilizer reserves would be leased for a term of fifty years to farmer cooperatives. The lease is to be consummated within five years from the date of completion of the plants. Instead of leasing the mineral resources, the cooperatives could, of they preferred, buy the mined raw material from TVA or the Secretary of the Interior.

In furtherance of the purposes and policies of the program, title IV of the bill provides steps to encourage and facilitate the development of farmer cooperative association by loans through the Farm Credit Administration. Notwithstanding the restrictions or limitations of any other laws or regulations, the bill states, loans may be made by FCA to farmer cooperatives to finance the acquisition of mineral reserves "and for the acquisition, construction and operation of plants for the manufacture and distribution of concentrated phosphatic and potassic fertilizers and for the acquisition and operation of such war plants and facilities for the production and distribution of nitrogenous and other chemicals as may be deemed advisable to round out the program."

Loans for the acquisition, construction, equipping, and refinancing of plants may be made in amounts up to 90 per cent of the appraised value of the security offered for terms up to fifty years at a rate of interest not exceeding 2½ per cent. Loans for operating the plants would be not exceeding ten-year maturity and also at not more than 2½ per cent.

The bill states that in the event a farmer cooperative is organized to engage in production of fertilizer, TVA or the Secretary of the Interior shall see to it that the plant is adequately supplied with phosphate, from either private or public sources.

In its concluding title VI, the bill directs the Secretary of the Interior to hold the remaining phosphate and potassic minerals in the public domain in public trust to perpetuate the purposes of the bill.

The bill would be known as the national fertilizer policy act of 1945.

Nitrogen Compounds in 1944

IN the earlier months of 1944 conditions prevailed in the nitrogen industry similar to those in 1943, when lowered ordnance demands and increased supply of anhydrous ammonia furnished increasingly large quantities of ammonia and its compounds to the American farmer. According to the Bureau of Mines, United States Department of the Interior, nitrogen was still urgently needed to meet a shortage in nitrogenous fertilizers in the greatly increased food-production programs. The general complacency which had slackened munitions production in the early part of the year was shattered in mid-year with the recognition of the need for more explosives in the coming military campaigns. A sharp reversal of munitions production policy followed, and nitrogen deliveries to the fertilizer industry were slashed as early as August, 1944.

From mid-summer on, increasing military demands reduced nitrogen supplies for 1944–45 crops, and at the end of the year it was believed that the quantity of nitrogen available to agriculture would be less than was used in the previous year. In June 1944, it had been anticipated that at least 675,000 tons of nitrogen would be obtainable for fertilizers, or about 7 per cent more than the 630,000 tons used in 1943–44. In September estimates placed the possible supply at only 530,000 tons but in November expectations had risen slightly to 576,000 tons. The annual nitrogen capacity of the United States at the present time is about 1,450,000 tons, of which 750,000 tons is of government plants and 700,000 tons of plants belonging to private owners. This large capacity, developed under inflated wartime conditions, is far in excess of normal peacetime demands, and the question of its post-war utilization is still under consideration. It appears possible that at least some of the excess government capacity could be used in the post-war period and that some of the balance should be kept in standby condition as an integral part of the military establishment of the nation.

INORGANIC NITROGEN COMPOUNDS

Natural Nitrates

Domestic Nitrate Deposits. There has been no recent development of or output from any of the domestic deposits of natural nitrates so far as is known. Deposits of soluble nitrate minerals are widely distributed throughout the United States, but the known deposits are all too small and low grade to serve as a basis for a domestic nitrate industry.

Chilean Nitrate. Large quantities of natural sodium nitrate and much smaller quantities of potassium-sodium nitrate continue to be imported from Chile under a wartime subsidy whereby the United States Government absorbs some of the increased costs. The shortage of ships resulting from world-wide military and naval operations has been a bottleneck in the movement of Chilean nitrate to the United States. The War Shipping Administration has indicated that the shipping situation will continue to be uncertain. However, according to the War Production Board, it established in October, 1944, an A-3 shipping priority for 850,000 tons of 16 per cent Chilean nitrate of soda for the year ending June 30, 1945, considerably more than the reported 597,000 tons brought in during 1943–44 fertilizer year.

Losses of nitrate by enemy action in World War II during movement from Chile to the United States have been small.

In the first World War Chilean nitrate was used largely in the manufacture of munitions, but in World War II the great bulk of the imports into the United States has been for the production of food and feed.

Imported sodium nitrate is under allocation, first under Order M-62 dated February 1, 1942, which was revoked December 26, 1944, when sodium nitrate was placed under Schedule 80 (Nitrogen Compounds) of General Allocation Order M-300 of the War Production Board. Imports of Chilean nitrate have been inadequate for full agri-

cultural requirements. Consequently little has been allocated to mixed fertilizers in recent years. Its use in eastern United States has been restricted to direct application to the soil as side and top dressings.

According to the Revised Maximum Price Regulation No. 205 of June 30, 1944, the maximum delivered price at any destination was $30.00 per ton in bulk; $33.00 in 100-pound bags; or $32.40 in 167- or 200-pound bags; plus the lowest carload rail freight rate per ton on the material to such destination from the nitrate port which has the lowest carload freight rate to such destination.

For nitrate of soda-potash (minimum nitrogen content 14 per cent) the maximum delivered price at any destination was $38.00 per ton in bulk; $41.00 in 100-pound bags; or $40.40 in 167- or 200-pound bags, plus the lowest carload rail freight as defined above.

Nitrate of soda imported from Chile is stored in warehouses in various United States ports. Most of it is shipped from these ports to fertilizer manufacturers in carload lots. However, at New York City, N. Y., Camden, N. J., and Baltimore, Md., it has been customary for some fertilizer manufacturers to take delivery by truck. Maximum prices for the imported nitrate of soda loaded on trucks at warehouses in these three cities was increased 50 cents per ton, effective November 16, 1944, by the Office of Price Administration.

Retail prices of agricultural sodium nitrate were covered into Second Revised Maximum Price Regulation No. 135, as amended July 26, 1944, superceding Revised Maximum Price regulation No. 108 (Nitrogenous Fertilizer Materials) which formerly covered sales of nitrogenous fertilizer materials to consumers.

Synthetic Nitrogen Compounds

General. Ammonia and certain nitrogen compounds were under allocation by the War Production Board: General Preference Orders M-163, covering by-product ammonia; M-164, synthetic ammonia; M-62, sodium nitrate; and M-165, the remainder. All were in force throughout 1943 and up to December 26, 1944, when they were revoked. These compounds were then placed under General Allocation Order M-300, Schedules 79 (Synthetic Ammonia) and 80 (Nitrogen Compounds), as Appendix B materials. The nitrogen compounds listed under Schedule 80 of December 26, 1944, were ammonium sulphate, sodium nitrate, ammonium nitrate, (fertilizer grade), calcium cyanamide, ammonium phosphate (fertilizer grade), ammonium nitrate mixtures, mixed nitrogen solutions, B liquors, urea mixtures of 42 per cent nitrogen (including "Uramon" but not including food grade urea).

On February 7, 1945, Schedule 80 was amended so as to substitute aqua ammonia (A, B, and C liquors) for B liquor.

Ammonia and its Compounds. The principal uses of ammonia have been military and agricultural. Minor quantities are used in industry. The surplus of ammonia above military demands, which appeared in 1943, continued into the first part of 1944, and agriculture benefited, but in the latter part of the year increased munitions requirements reduced the supply to agriculture.

Domestic capacity for the production of synthetic ammonia has been greatly increased during the war and is now apparently much greater than probable post-war demands. Current production figures are not available.

Production of domestic by-product coke ammonia liquor (NH_3 content) in 1944 (1944 ammonia liquor and ammonium sulphate figures are preliminary) was 31,665 tons compared with 34,106 tons in 1943. Sales were 29,965 tons in 1944 as against 32,327 tons in 1943.

Ammonium sulphate, one of the principal sources of nitrogen in mixed fertilizers, is obtained solely as a manufactured product. Virtually all is used for fertilizer. Except for small quantities of synthetic origin, the entire production in the United States comes from by-product coke operations. The by-product coke output increased from 761,270 short tons in 1943 to 814,756 tons in 1944, whereas sales in 1944 were 776,828 tons compared with 774,815 tons in 1943. Stocks increased from 28,397 tons on January 1st to 69,013 tons at the end of the year.

Maximum prices of sulphate of ammonia which were formerly governed by Maximum Price Regulation No. 205 are covered in the Revised Price Regulation No. 205 of June 30, 1944.

Ammonium nitrate was produced in both government and private plants in 1944, and considerable quantities were imported from Canada. Production figures are not available. According to the United States Department of Agriculture, consumption in the 1943-44 fertilizer season for fertilizers was approximately 300,000 tons. Curtailment of the supply for fertilizer purposes from government nitrogen plants began in the summer of 1944, but deliveries from the

(Continued on page 28)

The Response of Individual Plants and of Individual Crops to Phosphate Fertilizer

By JESSE GREEN

Chief Agronomist, Fertilizer Department, Anaconda Copper Mining Co., Anaconda, Mont.

AMONG men and animals there is a wide difference in the ability of individuals or groups of individuals to live under natural conditions. The same differences are found in plants.

In a beet field where the crop is suffering from severe phosphorus deficiency, there are always a certain number of individual beets that do not show the effects of starvation for the element phosphorus. These individuals may not be especially well developed, but they have managed to live and grow almost normally.

Alfalfa plants growing on phosphorus-deficient soil show wide differences in their development. In the fields where most of the plants exhibit all the symptoms of phosphorus deficiency, there are a few plants that have ordinary size and growth, or have been able to live successfully with a shortage of phosphorus.

Among a great number of tests with phosphate fertilizer on various crops, it has been observed that the response of the different crops varies widely. For example, oats and barley respond better than wheat, and alfalfa responds better than any of the grains. Sugar beets respond rapidly and beans hardly at all.

It may be contended that the demands of the crops differ, and this is part of the cause for varying response, but there are still other reasons. On one occasion, a fertilizer test strip ran across an alfalfa field and continued over an adjoining field of crested wheat grass. There was a great increase in the growth of the fertilized alfalfa, but not the slightest sign of a response on the crested wheat grass. Several other tests on crested wheat grass alone showed no response to the fertilizer, indicating that this plant is well able to live off the natural food resources.

Continued observations show that phosphate fertilizer is seldom effective on beans, but that crops which follow the next year on the fertilized bean land often show outstanding results from the fertilizer applied to the bean crop the year before.

The evidence indicates clearly that individual plants and species of plants have different abilities to obtain plant food. The reasons are not so apparent as the differences. It is a well established fact, however, that plants obtain a good portion of their food by the action of carbon dioxide released from their roots on the solid minerals in the soil. The slight acidity of carbonic acid acts in local regions around the roots, and the minerals dissolved are drawn at once into the plant by the movement of water.

It would then seem reasonable that the amount of carbon dioxide respired would determine the amount of minerals dissolved. A plant producing a large amount of carbon dioxide could live more easily off the natural resources in the soil than one producing smaller amounts of carbon dioxide. It could obtain its phosphorus more easily in a phosphorus-deficient soil.

A beet that has managed to live when most of its neighbors have died for want of phosphorus is one that has the ability to liberate large amounts of carbon dioxide. This rule surely holds equally well with a species of plants, as beans, that are more able to live on poor soil than other crops. They respire abundant quantities of carbon dioxide from their roots.

There are, of course, other factors. A bean plant gives off its carbon dioxide in a small area as compared to a beet or alfalfa plant. Concentration of carbon dioxide will play an important part in dissolving plant foods. The respiration of carbon dioxide from an alfalfa root is, without doubt, greater than that from a bean plant, but the alfalfa root extends through so much more territory. The carbon dioxide from an alfalfa root system is liberated in comparatively small quantities at any given point because of the great distance traversed by the roots. The concentration of carbon dioxide would then be low at any given point, and hence the dissolving power would be of the same order.

As a plant increases in growth, the rate of

(Continued on page 28)

National Planning Association Favors Fertilizer Production by Private Industry

IN A REPORT entitled "Fertilizers in the Postwar National Economy," the National Planning Association has called attention to the need for developing a sound national policy on fertilizers. The report was submitted to the Association by its Agriculture Committee on National Policy, made up of representatives of producers, farm organizations, and the food processing industry, and headed by Dr. Theodore W. Schultz, Professor of Agricultural Economics at the University of Chicago.

"Fertilizers, because of their effectiveness in increasing efficient farm operations, maintaining soil fertility, and encouraging soil conservation, contribute importantly to a stable agriculture," states E. C. Coil, Executive Director of the Association, in releasing the report. "A prosperous agriculture," he continues, "is, in turn, important to industry and labor. Because of these far-reaching effects on our national economy, the Agriculture Committee believes it appropriate that the National Planning Association and the American public give careful consideration to procedures which might be adopted for increasing the effective and profitable use of fertilizers."

The Committee's recommendations on national policy call for:

1. Production of commercial fertilizers by private industry, including farm cooperatives, provided competition is effective in protecting the public interest. (Ten members of the committee have approved a footnote recommending that the Government enforce low-price policy by operation of "yardstick" fertilizer plants in case there is not sufficient competition to protect the public interest.)

2. Imports of fertilizers free of duty and on the basis of fair international competition.

3. Distribution of fertilizers through regular industry distribution channels including farmer cooperatives.

4. Limitation of subsidies which may be paid for the use of fertilizers to soil-conserving practices. Such subsidies should be handled as to establish fertilizer use on an economic basis which will encourage continuation of the desired practices without a subsidy wherever possible.

5. Government assistance in evaluating potash and phosphate resources and in conducting research on new and improved processes for the production of fertilizers.

6. Continued and increased public support for research and education on fertilizer use.

7. Government attention and action directed toward ways and means of insuring adequate markets and prices for farm products.

8. Adoption of policies to lower plant food costs.

As a basis for making its recommendations, the committee has studied, and presents in the report, extensive data on fertilizer consumption in the past, domestic resources and production capacity, probable postwar demand, and other factors which have a bearing on developing a national policy.

Increased Crops from Fertilizers

The increased yield resulting from the use of 12 million tons of fertilizer in 1944 accounted for about 20 per cent of our total crop production, the analysis reveals. Large and important regions of the United States depend on the extensive use of fertilizers for a successful agriculture and a healthy overall economy. Among the factors influencing farm income and agricultural welfare, soil fertility is basic. Successful crop production depends on having soils well supplied with the nutrients and elements essential for plant growth. If these nutrients are deficient, crop yields are low, net farm income is usually small, and the general welfare is depressed. The place of fertilizers in the agricultural economy of the individual States is indicated in tables and charts of the report showing the proportion of the crop value attributable to the use of fertilizer.

The proper use of fertilizer also makes a significant contribution to agricultural welfare by its effectiveness in reducing soil erosion. The Agriculture Committee points out that fertilizers and lime may be effectively used for this purpose in at least two ways.

(Continued on page 24)

IT MAY BE

By SAMUEL L. VEITCH

Production Changes

Major changes, percentage wise from last year may be as follows. Increases: winter wheat 12 per cent; sugar beets 20 per cent; tobacco 4 per cent; oats 8⅓ per cent; rice 1¾ per cent; flaxseed 36¾ per cent. Decreases: spring wheat 1¾ per cent; barley 15 per cent; corn 3 per cent; potatoes 4 per cent; sweet potatoes 8 per cent; sorghums 10⅔ per cent; dry beans 11½ per cent; dry peas 4⅓ per cent; soybeans 2½ per cent.

The livestock and livestock products situation may not be as serious as the immediate supply position would indicate. Milk production is at a record level; cattle marketings are up 15 per cent and there remains a record 80,000,000 head on farms and ranches. It may be, there is a certain percentage of "bull" in these figures; as no actual count was taken.

Farm Controls

Important portions of the Byrnes report dealing with agriculture and agricultural commodities generally were overlooked in press dispatches. The agricultural recommendations were prepared by J. B. Hutson, who shifted last fall from WFA production chief and CCC president to farm reconversion planner for Byrnes. He talked the plans over with government food and farm officials in advance. Byrnes noted that the 90 per cent of parity guarantee on most farm productions for two years after the war is "somewhat higher than support prices before the war, and will create certain production and marketing problems."

Other portions of the heading of "Prices and Production" may be worthy of your attention, which read as follows: "A careful appraisal of the situation indicates that during the reconversion period there will be markets at or above the support price levels for the increased production of many farm commodities, assuming a high level of employment in industry and a reasonable volume of exports. This is particularly true in the case of commodities for which the demand was increasing before the war. Any surpluses among these will be due to minor changes in demand or exceptionally favorable growing conditions. Such supplies can be used for relief, or for school lunch program.

"The supply for some commodities probably will definitely exceed the demand. Surplus problems with some in this group can be handled through the use of marketing quotas, which have already been authorized.

"This type of program is adapted to commodities for which a good volume of domestic consumption and exports can be maintained at support prices, and for which demand does not fall off greatly as prices advance."

New Legislation

Byrnes suggested that present legislation may not be adequate to deal with post-war farm production problems. His suggestion of changes in the 90 per cent of parity pledge still is reverberating through the farm organizations. The relatively "high prices" for some farm commodities provided for in the Steagall Amendment will cause domestic consumption and export demand for these commodities to fall off rapidly after the war, he said.

Surpluses of some commodities were accumulated before the war when support prices were substantially lower than have been authorized for the reconversion period.

"Existing legislation does not appear to be adequate for dealing with such commodities," Byrnes said.

Rural Electrification

It may be, the good friends of William Sanderson, Nebraska Farmers Union official, are showing him around Washington as a prospective candidate to head the Rural Electrification Administration.

Victory Farm Volunteers

The United States Crop Corps is made up of town and city men, and women and school youth who volunteer for farm work. The Crop Corps has two branches, one the Victory Farm Volunteers for boys and girls 14 to 18 years old, and the Woman's Land Army for women and girls 18 years of age and over.

Recruiting for the Crop Corps is headed by the County agricultural agents, who also apportion the labor requested by the farmers.

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New Fertilizer Bill In Congress

Following the proposals of the American Farm Bureau Federation, a new national fertilizer policy bill was introduced in Congress April 17th by Senators Lister Hill and John Bankhead of Alabama and Congressman John W. Flannagan of Virginia.

In brief the bill would have the Federal government construct at least three huge fertilizer manufacturing plants for the production of phosphatic and potash fertilizers, and would make low-cost loans to farmer cooperatives to acquire army ordnance plants for producing synthetic nitrogen and to establish plants for making mixed fertilizers.

The authors of the bill have interpreted a national fertilizer policy as a program for projecting the government into the manufacture of fertilizers and through Federal subsidies, establish farm cooperatives to manufacture and distribute mixed fertilizers. It is, of course, a movement toward nationalizing the production of fertilizers as against private enterprise in this industry. It is perhaps the most flagrant proposal to venture into socialism that Congress has been called upon to face.

The estimated initial cost of plants to be constructed by the government is $52,000,000, of which the Department of Interior is to use $13,500,000 to erect two plants to produce western phosphates and potash; $8,000,000 for surveying and purchasing potash deposits; $6,000,000 for TVA to erect a phosphate plant at Mobile, Alabama; $5,000,000 to acquire Florida phosphate lands and $20,000,000 for use in demonstrating the use of the government-made fertilizers on farms.

The approach of those who would project the government into fertilizer manufacture is that new, concentrated and effective materials for fertilizing crops are to be produced and demonstrated. As a matter of fact, nothing new is proposed which the fertilizer industry is not already producing, and nothing is likely to be produced that the industry cannot manufacture as cheaply as the government can make them.

The new measure reeks with politics under the guise of "farm demonstrations." Free fertilizers, involving an expenditure of $20,000,000, are to be handed out to farmers, to "demonstrate" what farmers already know and which have been demonstrated over and over again for more than 50 years in nearly every community in the United

States, by State agricultural experiment stations, County agricultural agents and by the fertilizer industry itself. The bill, in fact, brushes off the findings of the agricultural experiment stations and proposes widespread demonstrations which, of course, cannot be made with the scientific accuracy of trained research workers of the experiment stations.

County agents have carried on so many fertilizer demonstrations through the years that few farmers do not know or have not observed the value of nitrogen, phosphorus and potash as fertilizers, but, of course, if the government wants to give them some fertilizers to use, they will welcome it.

The Hill-Bankhead-Flannagan bill is a direct assault on private enterprise with possible far-reaching repercussions. It is a test of whether this country is to proceed down the middle of the road it has built or swing to the left.

Larger Farms Predicted for the Future

As a result of changes in farm organization imposed by the war, Kenneth Treanor, Economist of the Georgia Agricultural Extension Service, says there are definite trends toward larger farms and larger operating units. The increased use of labor-saving machinery being partially responsible, he declared, the use of machines is certain to increase when more become available.

With 13 per cent less people on Georgia farms than at the outbreak of the war, Mr. Treanor says: "Despite the loss of farm population each year since the war began, and despite the fact that those who left farms have been the more able-bodied men and women, the output of farm products each year since 1941 has been considerably greater than in years immediately preceding 1941.

"These trends," he states, "have been in progress many years. The decline in the farm population began with the depression following World War I and has continued almost without a break. World War II has accentuated these trends but has not been responsible for them.

"Postwar trends will depend upon what happens in industry and what happens to the national income. It is highly probable that many people who left the farm will return. It would seem likely, however, that the number returning will be considerably smaller than the number which left.

"While the value of farm land has increased rapidly, the farm mortgage debt in Georgia in 1940 was over $79,000,000, but in 1943, it had been reduced to $75,000,000. The ratio of farm mortgage to debt has been reduced from 16 per cent in 1940 to 10 per cent in 1943, according to Mr. Treanor who voiced the hope that the trend would continue so that the farmer would be in the best possible position to withstand any necessary adjustments after the war.

Swift Sponsors Research Projects

A $15,000 grant by Swift and Company, Chicago, to the Agricultural Experiment Station of Michigan State College for use in a project related to improvement of cream and milk for manufacturing purposes and one of $86,200 from the American Dairy Association for 10-year studies of the effect of soils and fertilizers on feed, the effect of feed on animals, and the nutritional quality of milk as a result, were accepted by the State Board of Agriculture, governing body of the college.

Lower Bushel Cost with Higher Yield

"Experiment station tests show that it costs more per bushel to produce a 20 bushel crop of corn than it does to produce a 40 bushel crop," says County Agent B. E. Grant of Bertie County, North Carolina, who has begun a campaign to double the yield of corn per acre in that section in the next few years.

Many other counties throughout North Carolina are conducting special corn contests this season because growers realize that higher yields of corn per acre give one of the best methods of supporting the state's rapidly expanding livestock industry.

"When we consider the fact that the better farmers make from 40 to 60 bushels per acre, we see that there is plenty of room for improvement in the crop that covers about one-third of the cultivated acreage of the state," Grant says. "We need a greater use of soil building crops and fertilizer, coupled with improved practices in growing the crop."

Here are some suggestions which the extension agent has made to his cooperating growers. Improve the soil with leguminous crops. Do not plant corn on poorly drained

soil because soybeans and lespedeza will make more feed on such land.

Use from 300 to 500 pounds of complete fertilizer in the drill. Top-dress with the equivalent of 200 pounds of nitrate of soda, or more, and 100 pounds of muriate of potash. Use an adapted hybrid or a good local variety.

March Tax Tag Sales

Fertilizer tax tag sales in March in the 17 reporting States exceeded sales in March, 1944 by more than a hundred thousand tons. The rise over last year was widespread through the South, with 10 of the 12 States reporting increases. A small decline took place in the Midwest.

Total sales in the first three months of the year were 4 per cent larger than in the corresponding period of last year and 2 per cent larger than two years ago. Declines were registered in only three Southern States and one Midwestern State.

Sales in the first nine months of the current fiscal year, July through March, were 3 per cent larger than last year and 20 per cent larger than two years ago. An increase of more than 50 per cent has taken place in the last two years in the Midwest.

As in each of the last six years, the fertilizer industry is again increasing its output this year to help the American farmers produce the large quantities of foodstuffs needed. Fertilizer helps to produce the food that is a weapon of war.

FERTILIZER TAX TAG SALES

State	March 1945 Tons	March 1944 Tons	March 1943 Tons	% of 1944	January-March 1945 Tons	January-March 1944 Tons	January-March 1943 Tons
Virginia	101,009	74,463	90,541	114	248,065	216,862	215,235
N. Carolina	292,216	260,970	258,906	108	822,138	758,540	777,289
S. Carolina	196,930	171,675	184,537	104	505,978	487,028	547,747
Georgia	292,404	261,341	289,963	101	679,109	669,899	698,176
Florida*	73,290	79,580	55,315	103	274,582	266,722	221,135
Alabama	164,000	161,600	164,250	101	471,000	469,250	481,000
Mississippi	76,250	74,199	69,129	91	218,167	239,594	240,936
Tennessee	52,875	44,625	43,415	106	119,250	112,310	99,766
Arkansas	21,550	16,775	37,760	97	69,950	71,933	110,550
Louisiana	25,275	45,250	39,100	80	88,086	110,400	107,913
Texas	35,745	33,109	36,475	108	100,125	92,636	89,180
Oklahoma	3,600	2,112	2,721	112	11,662	10,371	12,171
Total South	1,335,144	1,225,699	1,272,112	103	3,608,112	3,505,545	3,601,098
Indiana	34,556	33,275	34,450	95	117,612	123,230	156,800
Illinois	16,850	18,600	12,542	119	75,925	63,550	46,722
Kentucky	29,052	39,173	31,963	113	117,445	103,549	64,378
Missouri	24,628	13,243	8,222	120	72,137	60,189	37,074
Kansas	710	2,685	696	109	12,915	11,856	1,999
Total Midwest	105,796	106,976	87,873	109	396,034	362,374	306,973
Grand Total	1,440,940	1,332,675	1,359,985	104	4,004,146	3,867,919	3,908,071

*Revised by eliminating the tonnage of raw phosphate rock and liming materials for earlier periods.

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FERTILIZER MATERIALS MARKET

NEW YORK

No Surplus Supplies of Any Material Overhanging Fertilizer Materials Market. Labor Shortage and Transportation Problems Handicap Production of Both Materials and Mixed Goods. Potash Seems To Be in the Best Position Among Fertilizer Materials.

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, April 19, 1945.

Sulphate of Ammonia

There was no change in the sulphate of ammonia situation. Fertilizer manufacturers are taking all that can be produced and shipped. The early spring found some mixers with inadequate stocks on hand and there was a consequent heavy call for materials.

Nitrate of Soda

This material is moving steadily into consuming channels but is meeting some transportation difficulties. Many consumers had the foresight to lay in their supplies early and these are reaping the reward of their astuteness.

Organic Ammoniates

With the feed market taking all available supplies at ceiling prices, little tonnage of organic materials is going into fertilizers this spring. Buyers are taking all offerings just as soon as they come on the market.

Superphosphate

The superphosphate situation fails to show any improvement. In fact, figures for February show smaller production than during the same month last year. Shipments are exceeding production, particularly in the concentrated material.

Phosphate Rock

Shipments continue at high levels in spite of transportation difficulties. Superphosphate producers are taking all they can process with the present short labor supply. April should show high figures on rock production and sales.

Potash

It is estimated that potash producers could have used half again as many box cars in shipping current tonnage as the railroads have been able to supply. Production is about on the level with shipments and no excess material is accumulating at producing plants.

CHARLESTON

Fertilizer Manufacturers Behind in Shipments of Mixed Goods. All Materials Scarce, Particularly Organics.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON, April 16, 1945.

Fertilizer manufacturers apparently are two to three weeks behind in the movement of mixed fertilizers in the Southeast.

Organics.—These continue practically unobtainable at present. Even peanut hull bran is scarce.

Dried Blood.—A nominal market on this continues at selling price $5.53 per unit of ammonia ($6.72 per unit N), f. o. b. Chicago, but the demand is ahead of the production.

Sulphate of Ammonia.—The WPB has notified manufacturers that there is an additional supply of sulphate of ammonia which they can use in fertilizers but has left it to the fertilizer manufacturers to find a producer who has any material.

Superphosphate.—The production of ordinary 18 per cent superphosphate in February is reported to have been 35,000 tons less than February, 1944.

CHICAGO

Practically No Offerings of Fertilizer Organics. Feed Materials Market Strong at Ceiling Prices.

Exclusive Correspondence to "The American Fertilizer"

CHICAGO, April 16, 1945.

The organic market remains at a standstill as far as any offerings are concerned. Demand continues, particularly for nearby

American Farms, Fertilizer, War Bonds and Raymond Multi-Wall Paper Shipping Sacks

A combination that is speeding Victory on every front line and home front. On American farms, farmers are fighting day and night against lack of equipment . . . lack of help . . . fighting for more and more production. Fertilizer producers are keeping these farmers supplied with fertilizer . . . and *Raymond Multi-Wall Paper Shipping Sacks* are solving the all-important problem of packing and shipping requirements.

Your Bonds are buying planes, ships, guns, and ammunition . . . they are the one sure way to hasten Victory, hasten the day that means home to more than 2,000,000 farm boys who are in the armed forces.

BUY AND KEEP BUYING EXTRA WAR BONDS!

SUPPORT THE RED CROSS! GIVE YOUR BLOOD!

THE RAYMOND BAG COMPANY

MIDDLETOWN, OHIO

shipment, but such demand remains unsatisfied.

Feeds continue strong at ceiling price. Materials are in well cleaned up position. Ceilings are firmly entrenched:

High grade ground fertilizer tankage, $3.85 to $4.00 ($4.68 to $4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, $5.53 per unit ammonia ($6.72 per unit N); blood, $5.53 ($6.72 per unit N); dry rendered tankage, $1.25 per unit of protein, f. o. b. producing points.

Rice and Fertilized Pasture Rotation

Agronomists of the Louisiana State University have reported on a three-year test of rotating improved pastures with rice and the effect of the practice on rice and beef cattle production. The net profit from increased beef and rice production derived through pasture improvement and rotation was over $41 per acre.

Results from grazing the experimental pastures showed that the improved pastures provided good to excellent grazing for 230 to 250 days annually. Pastures seeded and mowed produced 25 to 145 pounds of beef per acre and those mowed, seeded and fertilized, or fertilized and limed, produced 220 to 295 pounds of beef per acre. Pastures not seeded or fertilized produced only 15 to 95 pounds of beef per acre during the eight-months grazing period.

Pastures grazed for two years were turned under and the land disked and planted to rice. Rice obtained from the unfertilized and unlimed plots produced 15.2 barrels of rice per acre, while rice planted after improved pastures had been seeded, fertilized and limed, produced 21.6 barrels fer acre.

Southern Agricultural Readjustments

By C. A. Whittle

While cotton and tobacco will continue to be the leading cash crops of the South, the average cotton farmer will find hard going if he has nothing other than cotton to sell.

The fact that cotton is not subject to spoilage is both an advantage and disadvantage. It is a disadvantage when surplus crops accumulate far in excess of annual consumption, and that is just what the cotton farmer is now confronting.

If this country were the only producer of cotton, the surplus would impose no great threat, but last year foreign countries produced more cotton than the United States. India produced 4½ million bales. Russia and China, in spite of their wars, managed to grow 2½ million bales. Egypt grew nearly a million bales, Mexico one-half million bales, Argentina another half-million and Peru one-quarter million. Then there were smaller crops in British East Africa, Anglo-Egyptian Sudan, the Belgian Congo and Burma.

Not only is there increasing world competition in cotton growing, but there are rayon and nylon, very popular fabrics, that cotton has to face.

All of which indicate that southern farmers will have to employ every means at hand for efficient production to stay in the cotton game. It means more per acre on fewer acres, the growing of the higher yielding varieties, cultivation with labor-saving machinery and liberal applications of fertilizer to get low cost per unit of production.

Southern cotton farmers know what they are facing. Many are already readjusting their farming programs. Not by giving up

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cotton, but by reinforcing the farm with other activities, chief of which are livestock, truck crops and horticultural products.

Southern farmers are not single-crop devotees as often portrayed. A greater variety of crops is grown in the South than in any other section of the country. Most farmers are growing livestock, truck crops and fruits along with cotton. Whatever readjustment is necessary will, as a rule, be merely greater emphasis upon existing farm activity.

In adjusting to more cattle, hogs, sheep or other livestock, it follows that more feed crops will be grown. The fact that pasture can be extended to 8 to 10 months of the year, that cover crops can be grazed in the winter, that leguminous crops yield large tonnage, and the important fact that cottonseed meal and peanut meal are at hand for protein feed—all provide great advantages for growing livestock in the South.

The chief bottleneck in livestock production in the South is poor pasturage, poor only because the poorest land has been used for pasture. Abundant evidence has been developed that pastures can be converted into good pastures with fertilizers and lime. Clovers, lespedeza and grasses native to the South readily respond to fertilization and yield abundantly 8 or 9 months in the year.

In the adjustment of field crops to meet changed conditions, stress is being given to peanuts and sweet potatoes. War demands have greatly increased the need for peanuts, not only for the nut itself, but for its oil and its peanut butter. To stimulate production, the government has established an attractive supporting price. How long this incentive to grow peanuts will continue, is uncertain, but peanut growers during the pre-war period, found that when the commercial market was not satisfactory, they could let the hogs harvest the nuts profitably. This, of course, is still possible, but it is quite likely that the peanut and its products will hold to much of the popularity they won during the war.

The sweet potato is likely to win a much larger place in the farm programs of the South because of its new uses and improved marketing facilities. It is not only in increasing demand as human food and feed for livestock, but it is finding use as a source of starch and industrial alcohol. Besides it is a heavy-yielding crop, responding readily to fertilization and requiring less hand work than cotton.

The fact that the South grows fruits and vegetables for early markets at fancy prices, is an advantage to which farmers will give careful consideration in their readjustments of farm operations. It is expected that the possibilities of growing fruits and vegetables in the South will become greater with the aid of modern refrigeration and enlarged canning facilities in the South.

What is the significance of these contemplated changes to the fertilizer manufacturer? Cotton has been the greatest of all crops as a consumer of fertilizers. Will it require less fertilizer when fewer acres of it are grown?

It is possible that less fertilizer will be used for growing cotton, but it is certain that more fertilizers per acre will have to be applied to help get the high yields needed to meet world competition.

Whatever fertilizers may be lost by decreased cotton production will be more than made up by other crops substituted for cotton, and by the necessity of fertilizing, including pastures and forage crops to make the livestock industry in the South succeed.

In a word, whatever helps the producers of plant food. The need of crops for plant food to replace in the soil that which they have consumed will continue and must be supplied if the farmer is to win his greatest success.

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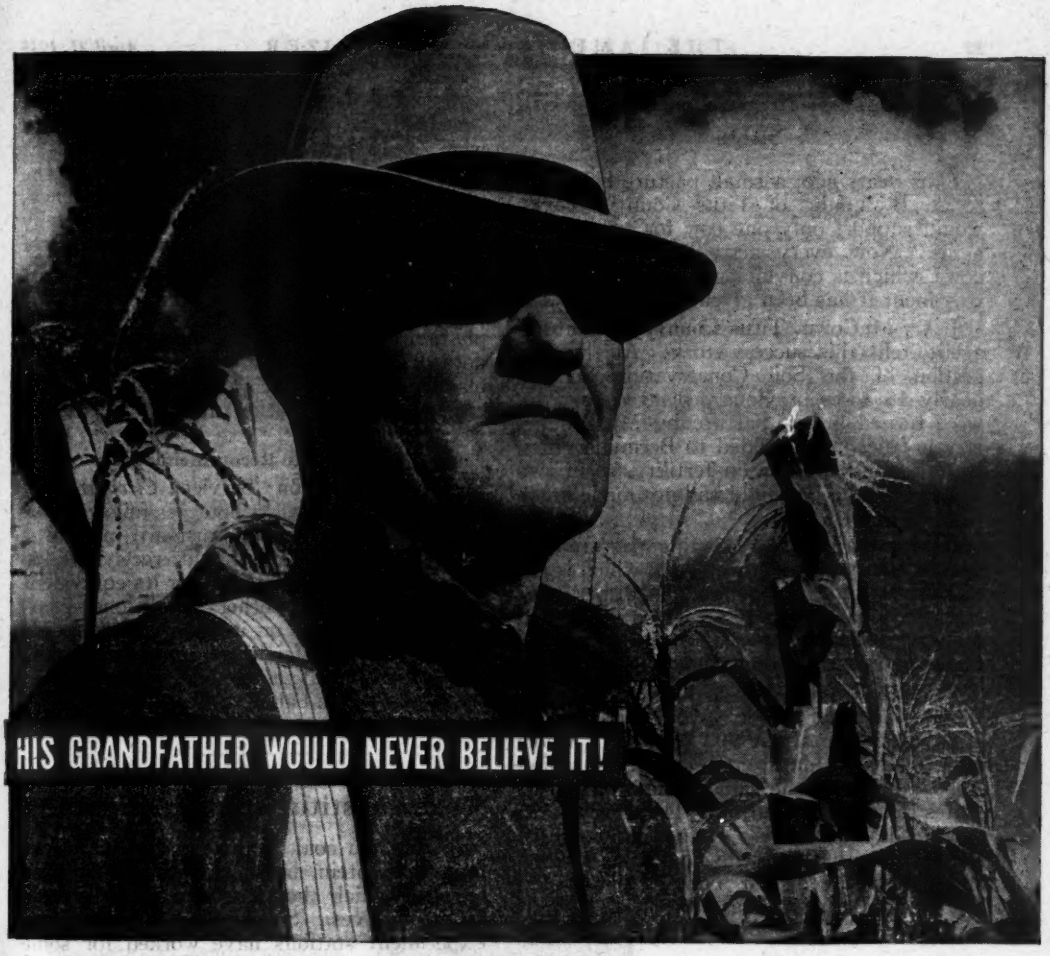

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Pasture Treatment Increases Milk Sales

Four years ago, a small pasture belonging to A. B. Young of Titus County, Texas, would support only one cow for every three acres. Now every acre is carrying three cows, which is convincing testimonial to the treatment it has been given.

J. W. McCown, Titus County agricultural agent, tells this success story: At the suggestion of the Soil Conservation Service, nearly 10 acres previously planted to crops were turned into a pasture by Mr. Young. It was fenced and sodded to Bermuda grass. But the land was low in fertility, so in two years' time the Bermuda had not made much progress.

In the spring of 1943 this pasture was treated with 100 pounds of P_2O_5, which is the equivalent of 500 pounds of 20 per cent superphosphate. The 10 acres also was seeded to Korean lespedeza that spring, and the following fall Mr. Young planted hop clover.

That's when the big change came about. Before the area was treated, Mr. Young's milk sales were about 900 pounds of whole milk every 15 days, and now he's selling 2,000 pounds in the same period. He estimates this 10 acres during 1944 furnished 335 grazing days per acre. That compares most favorably with 107 grazing days per acre on another pasture of Mr. Young's that's been sodded to Bermuda grass for several years.

—*Texas Agricultural Extension Service.*

Potato Fertilizer Tests

Blackening of Potatoes Discussed by English Scientist

Scientists at the Long Ashton Research Station, Bristol, England, commenting on blackening of potatoes, say, "In wartime when so much importance is attached to the potato as a food, the question of quality is of great importance and in this connection the trouble of blackening calls for special attention. The cause of blackening has been attributed to the formation of ferric iron, probably the black oxide. The precursor of the black pigment is regarded as possibly being ferrous iron in loose combination with proteins which are hydrolyzed on boiling, and probably to the hydroxide which is subsequently oxidized. In practice blackening has frequently been associated with potash deficiency in the soil and more especially where this deficiency exists in conjunction with high nitrogen status, resulting in a wide N–K ratio. Recent experiments at Long Ashton show that in addition to the blackening resulting from potash deficiency, the condition may also be brought about by a deficiency of phosphate and possibly of calcium. These latter results are of particular importance at present when large areas of poor acid land deficient in phosphate are being broken up and planted with potatoes. In the sand culture experiment blackening was associated with the highest contents of iron in the tubers."

Maine Potato Recommendations

Maine Extension Service *Circular 197* recommends that when potatoes follow clover in the rotation or when barnyard manure is plowed under, they should receive 1,400 pounds of a 6–9–15 fertilizer or its equivalent per acre. Under other conditions 2,000 pounds of 5–7–10 or its equivalent should be used. The fertilizer in all instances should be applied in bands on both sides of the seed piece and about 2 inches from it.

Urea Substitute for Protein Feed

Made from coal, air and water, urea contains no protein, but it supplies cattle with nitrogen which they can convert to protein for themselves. Several state Agricultural Experiment stations have worked for some time with urea as a feedstuff and have found that milk produced by cows fed urea has been maintained at a higher level than that produced by cows consuming other feeds.

The fertilizer industry will, therefore, find that this source of nitrogen will find increasing competition with the feed trade.

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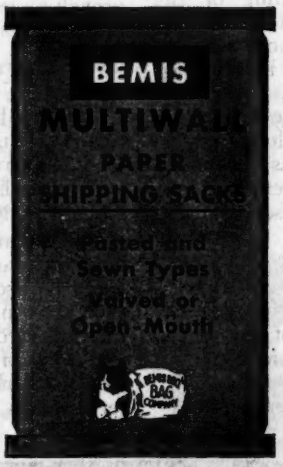
That's why so many have found that it pays to be a Bemis customer.



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Tobacco Fertilizer Recommendations

E. C. Westbrook, Agronomist of Georgia Extension Service, recommends 800 to 1,200 pounds of either 3–9–9 or 3–9–6 fertilizer per acre. Mr. Westbrook says:

"While wartime restrictions have made it difficult to obtain certain materials in desired quantities, the Southeastern Tobacco Committee urgently recommends that manufacturers not allow organic nitrogen content to fall below 25 per cent of the total nitrogen. The Committee recommends that potash be derived from any source of available potash, provided the chlorine content of the mixed fertilizer does not exceed 2 per cent. Where the pH of the soil is above 5.6, the maximum may be 3 per cent. As much as 2 per cent of chlorine in tobacco fertilizer is beneficial and many Georgia soils will tolerate as high as 3 per cent chlorine."

Cotton Growing Contest Helps in South Carolina

Extension Circular 267, announcing the cotton contest in 1945, reveals that 380 contestants completed their 5-acre demonstrations in 1944.

D. W. Watkins, Director of the Clemson College Extension Service, states in the circular: "Prior to the beginning of the contest less than half the State's production was fifteen-sixteenths of an inch or longer. During the past nineteen years much progress has been in staple length, so that in 1944 there was 99.9 per cent of the production fifteen-sixteenths of an inch or longer.

"The latest strains of the best improved varieties are used by the contestants who become producers of improved seed for use in their communities."

"Where permanent pastures are limed and fertilized, there is small growth of crab grass, broom sedge and weeds, and decidedly more grass, lespedeza and clover."

—*North Carolina Extension Service.*

NATIONAL PLANNING ASSOCIATION FAVORS FERTILIZER PRODUCTION BY PRIVATE INDUSTRY

(Continued from page 12)

First, they may be used on grass or other cover crops to promote rapid or denser vegetative cover, which reduces erosion by binding the soil, slowing run-off and increasing the infiltration of rainfall. In the second place, by increasing crop yields on the less erodible land of a farm, they reduce the need for cultivating easily erodible land. This land can then be placed in pasture or other crops that control erosion.

Fertilizer expenditures in the past have been closely correlated with farm income. The committee's estimates of future demand for fertilizers, therefore, are based on assumptions regarding the potential cash farm income and prices of fertilizer.

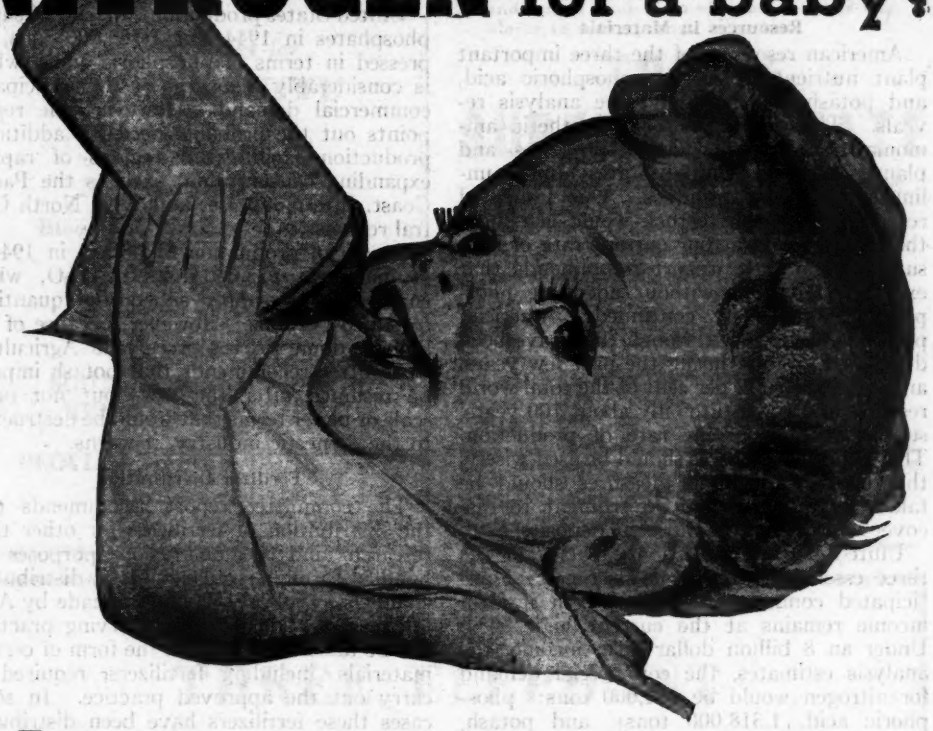
The total farm income from the sale of crops in 1944 is estimated to have been 8.85 billion dollars. The report asserts that "it seems improbable that this high level of income will be maintained." However, the extent of the expected decline in crop production and in prices cannot be predicted. Therefore, for the purpose of making estimates of commercial requirements of fertilizer, the Agriculture Committee has used three different income levels: 8, 6, and 4 billion dollars. At the close of the war, the report estimates, fertilizer prices will approach, in general, the level of 1940 (although nitrogen may be somewhat lower).

Post-War Demands for Fertilizers

On the basis of these assumptions, the report estimates that commercial demand for fertilizers after the war will be 13.2, 10.04 and 7.4 million tons, respectively, at a cost of 432, 325, and 218 million dollars.

The committee estimates that in addition approximately 10 million tons of fertilizer could be used to increase the yields of crops such as corn, cotton, grain, hay and pastures, which heretofore have often been produced at the cost of soil depletion while fertilizers were used on higher acre value crops. Through fertilization, production of these crops could

NITROGEN for a baby?



THE PROTEIN in a baby's "formula" is but a few steps advanced from the nitrogen you put in your fertilizer. Nitrogen-fed pastures, for instance, are better pastures—grass that is high in protein value will sustain more cows at higher milk-producing levels.

But nitrogen is indispensable in the manufacture of high explosives for the guns of war. These guns have an unbelievable appetite. Right now, they are consuming much of the nitrogen that normally goes into Du Pont Urea-Ammonia Liquors and "Uramon" Fertilizer Compound.

These carriers of Urea Nitrogen offer many benefits to manufacturer and grower alike. Now is the time to learn how to take full advantage of them—against the day when supplies are again ample.

Our field service men will be glad to consult with you. E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

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LIQUORS

URAMON*
FERTILIZER COMPOUND

DU PONT BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

be geared to the demand for them, increased yields on one part of the farm would reduce the need for cultivating easily erodible land; and the latter could then be placed in pasture or other crops that would control erosion.

Resources in Materials

American resources of the three important plant nutrients—nitrogen, phosphoric acid, and potash—differ widely, the analysis reveals. The development of synthetic ammonia or nitrogen fixation processes and plants gives the United States almost unlimited nitrogen resources. Our indicated reserves of phosphate rock would last more than 2,000 years at our current rate of consumption, and the report recommends that exports to nations without adequate phosphate resources be continued. American potash reserves, even though they have been developed rapidly during the past few years, are still less than 2 per cent of the total world reserves and constitute only about 100 years' supply at our current rate of production. These limited resources should be used wisely, the report warns, and measures should be taken by industry and government to discover and evaluate additional deposits.

United States production capacity of the three essential nutrients is in excess of anticipated commercial demand even if farm income remains at the current high level. Under an 8 billion dollar farm income, the analysis estimates, the commercial demand for nitrogen would be 764,000 tons; phosphoric acid, 1,318,000 tons; and potash, 764,000 tons.

The agriculture committeere commends that government synthetic ammonia plants with an annual capacity of 200,000 to 300,000 tons of nitrogen should be sold or leased to private industry, increasing the total private capacity to almost 900,000 tons of chemical nitrogen. Other government synthetic ammonia plants would be retained as a part of our military equipment or for future sale or lease if need arises. Imports of 150,000 to 250,000 tons are probable under conditions of high consumption, the analysis estimates, and should be duty free and competitive with domestic products of private industry. The total supply of approximately 1,100,000 tons would furnish the estimated demand for fertilizer nitrogen, an estimated 300,000 tons needed for industrial consumption, and the prewar level of about 50,000 tons for export.

United States production capacity of superphosphates in 1944 was 1,790,000 tons, expressed in terms of phosphoric acids, which is considerably in excess of the anticipated commercial demand. However, the report points out the probable need for additional production facilities in regions of rapidly expanding consumption, such as the Pacific Coast, Intermountain, and West North Central regions.

American production of potash in 1944 is estimated at 825,000 tons of K_2O, which enabled us to supply substantial quantities to Allied Nations. However, because of the limited domestic resources, the Agriculture Committee recommends that potash imports be resumed after the war—but not on a scale or under terms that would be destructive to the domestic industry, it warns.

Ferilizer Distribution

The committee report recommends that the distribution of fertilizers for other than research and demonstration purposes be handled through regular industry distribution channels. Subsidy payments made by AAA for the adoption of soil-conserving practices can be taken in cash or in the form of certain materials, including fertilizers, required to carry out the approved practice. In some cases these fertilizers have been distributed by AAA outside of the regular industry channels. Under war conditions, this procedure has certain advantages, the report admits, but under normal conditions distribution through industry channels is recommended. Distribution through industry channels can be effected, the committee points out, by the use of the cash and the purchase-order plans which are now in effect in some States.

Pointing out that the need for a clearly-defined fertilizer policy will become increasingly important as the war in Europe nears its end, E. J. Coil asserts, "The committee realizes that the use of fertilizers is closely

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. . . . WHEN BORON IS NEEDED TO CORRECT A DEFICIENCY OF THIS IMPORTANT SECONDARY ELEMENT

Agricultural authorities have shown that a lack of Boron in the soil can result in deficiency diseases which seriously impair the yield and quality of crops.

When Boron deficiencies are found, follow the recommendations of local County Agents or State Experiment Stations.

Information and references available on request.

AMERICAN POTASH & CHEMICAL CORPORATION
122 East 42nd ST., NEW YORK CITY

Pioneer Producers of Muriate of Potash in America

See Page 4

related to other economic factors in our agricultural system, but due to restrictions of time and space it does not in this report explore fully these related problems."

The NPA Agriculture, Business and Labor Committees will consider the disposal of all types of government-owned plants in greater detail in joint studies of reconversion problems, as well as the complex problems of postwar agricultural price and production, according to Mr. Coil. "This report is therefore submitted to the public in the hope that it will stimulate discussion which may be helpful to the NPA Standing Committees in their consideration of national policies," he concludes.

River Erosion Record

The Reidsville (N. C.) Water Department has tested the waters of Troublesome Creek from which it draws its water supply. In 1926 a test showed that each 300,000 gallons of water that passed the testing station contained five tons of soil in suspension. At this rate it was calculated that an average of 200 tons of soil a day was being carried along by the stream.

A recent test shows that conditions have changed. Only 65 tons of soil are being daily carried away by the stream. The change, according to R. P. Moore, conservationist, is due to better erosion control now in practice, whereby more soil is held in place and less reaches the stream to be borne away.

THE RESPONSE OF INDIVIDUAL PLANTS AND OF INDIVIDUAL CROPS TO PHOSPHATE FERTILIZER

(Continued from page 11)

evolution of carbon dioxide increases proportionately. When the size and needs increase, the ability to obtain plant foods increases. The production of carbon dioxide in a plant is comparable to the exhaust of a locomotive. On a hard pull the exhaust of the locomotive forces the fires to burn harder, and more power is developed. In a rapidly growing plant more carbon dioxide is given off, more minerals are dissolved, and the plant is able to grow faster. The process is accumulative.

It is, of course, recognized that all solvent action is not the result of carbon dioxide from the plant itself. There is carbon dioxide from decomposing organic matter, and there is acidity from other sources. But in a given field where there is extreme phosphorus deficiency, and where some plants survive and others die for lack of phosphorus, the difference can only be in the ability of the individual plants to meet their needs.

In considering the ability of different kinds of plants to obtain food, we find that on a very deficient field, beets and alfalfa will show a marked response to an application of phosphate fertilizer, whereas beans will be affected very little, or not at all. Beans are better able to obtain their nutrients than most other crops. The difference must be in ability to give off carbon dioxide, the chief means of dissolving minerals from the soil.

NITROGEN COMPOUNDS IN 1944

(Continued from page 10)

Tennessee Valley Authority plant and from Canada continued. Munitions requirements were expected to preclude conversion of ammonia to ammonium nitrate for fertilizer by the ordnance plants after November or December, leaving the Canadian plants as the principal source of supply during the remainder of the 1944–45 fertilizer year.

On February 1, 1944, distribution of ammonium nitrate being produced by the army ordnance plants for use in the manufacture of fertilizer was placed in the hands of the Commodity Credit Corporation under an arrangement agreed upon by the War Production Board and the War Food Administration. The Commodity Credit Corporation in turn designated Associated Cooperatives, Inc., as its agent in the distribution of this material. This arrangement supercedes that in effect since November 1, 1943, under which TVA acted as distributor. According to report, a private company acts

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"Ceilings" are saving you money

*84 months after war started

It's a far longer and more expensive war than the last one—but this time the cost of living hasn't been allowed to get out of hand. If you're ever tempted to grumble at price-and-wage controls, look at these charts—and DON'T. They're one reason to bless ceiling prices . . . and to check 'em whenever you shop. (They're posted for your protection!)

Rationing gives all a fair share

The Millionbucks get no more points than the poorest folks in town. Necessities are rationed to see that each gets his share. And rationing also keeps prices down: without it the fellow with the biggest wad of dough would have a terrific edge. Share and play square . . . pay points for everything you buy. (And shun black markets like the enemy they are!)

—and the money you DON'T SPEND helps hold living costs down

The plain bread-and-butter fact is this: there's about $1.50 in people's pockets for every dollar's worth of goods in the stores.

Splurge—buy anything you don't actually need—and you put the heat on everything to rise all along the line.

Save—deny yourself something you want but can get along without—and you help yourself a little today and a lot tomorrow.

Squeeze that budget. Squeeze a little more into your savings account. Squeeze a little more money into insurance. Squeeze yourself into buying another War Bond today . . . and every month from now on.

Wise enough to harness your money for your own safety?

ONLY YOU CAN DO IT.

A United States War message prepared by the War Advertising Council; approved by the Office of War Information and contributed by this magazine in cooperation with the Magazine Publishers of America

as distributor for the Canadian product.

The reduction in military needs freed large amounts of TVA production for commercial distribution as fertilizer and also presented an opportunity for use of nitrogen fertilizers in test-demonstrations in the program of TVA and land grant colleges, according to the annual report of the TVA for the year ended June 30, 1944.

Early in 1944 the price of ammonium nitrate produced by ordnance plants was established at $50 a ton f. o. b. plant, plus freight charges from the nearest plant. In June the Associated Cooperatives, Inc., is reported to have announced 8 to 4 per cent discounts from its basic price on fertilizer ammonium nitrate produced by TVA and ordnance plants for June to September deliveries. Retail prices of ammonium nitrate are covered by Second Revised Maximum Price Regulations as amended July 26, 1944.

Higher maximum retail prices for a new Canadian grade of ammonium nitrate was announced by the Office of Price Administration in February, 1945. In the northern and eastern sections of the country, where most of it will be used, this 33.5 per cent nitrogen product will cost $1.70 more per ton at retail than the old 32.5 per cent grade.

Sodium Nitrate. Little information is available regarding the current production or utilization of domestically produced synthetic sodium nitrate. According to the War Production Board the production in the spring of 1944 was running at a rate of about 310,000 tons a year, but it is believed that the 1944 actual production was much in escess of that figure.

According to the Revised Maximum Price Regulations No. 205, of June 30, 1944, of the Office of Price Administration, the maximum price that could be charged for domestically produced nitrate of soda (minimum nitrogen content 16 per cent) was $27.00 per ton in bulk; $30.05 per ton in 100-pound bags, or $29.35 per ton in 167- or 200-pound bags, f. o. b. production point, provided that if and when this material is stored at Atlantic and Gulf nitrate ports by the seller, the maximum delivered price at any destination that may be charged shall be $1.00 per ton higher than the above prices, plus certain specified freight rates. For nitrate of soda containing less than 16 units of nitrogen, the above maximum price shall be reduced at the rate of $2.00 per unit.

Retail price of agricultural sodium nitrate is covered by the Second Revised Maximum Price Regulation 135 as amended July 25, 1944.

Organic Materials

Because of restrictions in the use of chemical nitrogen in 1942 an increased demand for organic nitrogen-bearing fertilizers arose late in the year. To secure equitable distribution, the War Food Administration, on May 7, 1943, issued Food Production Order No. 12, effective May 1, 1943, banning purchase of these materials by fertilizer manufacturers without prior approval of the director of food production. On June 7, 1943, a revised food production order, War Food Order No. 12, effective June 1, 1943, to July 1, 1944, was issued. This order limited the quantity of all such materials that could be used as fertilizer to 70 per cent of the amount (in terms of nitrogen) acquired and used in the base period July 1, 1941, to June 30, 1942. Subsequently this percentage was raised to 80. On July 1, 1944, the War Food Administration revoked the broad general War Food Order No. 12 and issued in its place a restricted order, W. F. O.–105, covering only edible oilseed meals or cake. Restrictions are retained on edible oil seed meals available for fertilizer because of heavy requirement for them for livestock feed. The new order also contained provisions governing the distribution for fertilizer use of edible type oilseed meals, but of inedible quality.

Calcium cyanamide, CaCN, is not produced in the United States but is manufactured at Niagara Falls, Ontario, Canada, by North American Cyanamid, Ltd., at the only cyanamide producing plant in the British Empire or in the Western Hemisphere. It is marketed under the trade name Cyanamid. Considerable quantities are imported into the United States each year. Formerly used almost entirely as a fertilizer it has been supplanted to some extent by the introduction of direct methods of ammonia synthesis. However, its importance as a chemical raw material has increased.

BUYERS' GUIDE • A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"

This list contains representative concerns in the Commercial Fertilizer Industry, Including fertilizer manufacturers, machinery and equipment manufacturers, dealers in and manufacturers of commercial fertilizer materials and supplies, brokers, chemists, etc.
For Alphabetical List of Advertisers, see page 33.

AMMONIA—Anhydrous and Liquor
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.
Nitrogen Products, Inc., New York City

AMMONIUM NITRATE SOLUTIONS
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For an Alphabetical List of all the Advertisers, see page 33

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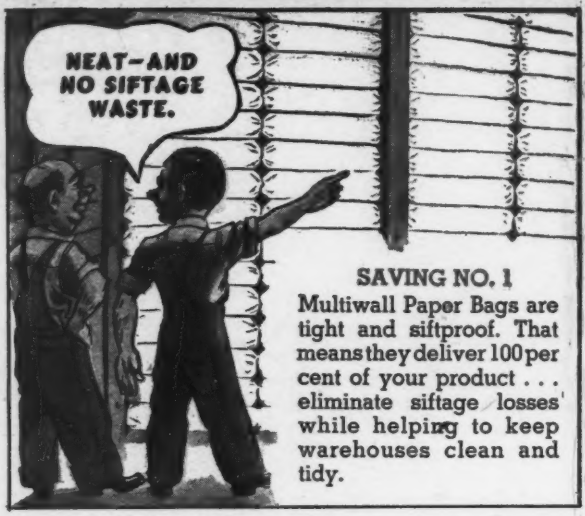

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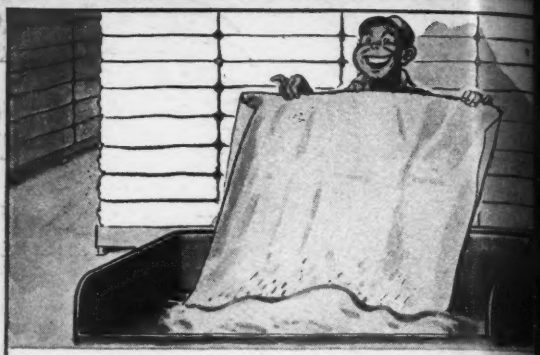

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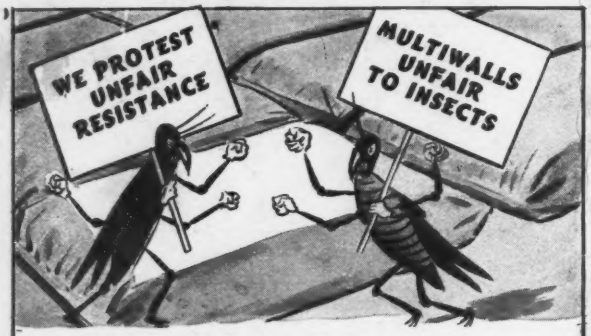

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